



Appendix D Detailed Cost Estimates

ANVIL POINTS FACILITY					
OPINION OF PROBABLE COST - CONCEPTUAL					
IN-PLACE STABILIZATION ALTERNATIVE - DRAFT					
Item No.	Line Item	Est. Qty.	Unit	Unit Price	Extended Price
Description					
MOBILIZATION & GENERAL SITE PREPARATION					
1	Mobilization, Bonding, Insurance	5	%	3068047	153402
2	Construction BMPs (E&S Controls)	1	LS	6000	6000
3	Access road improvement & final repair	7	DAY	1073	7511
4	Clear & Grub repository site & remove stumps	4	AC	7425	29700
5	Cleanup & Demobilization	1	LS	6000	6000
					202613
REPOSITORY SITE PREPARATION					
6	Surveying	1	LS	10000	10000
7	Excavation & stockpile for cover & screening at 50%	28700	CY	7.38	211663
8	Clay import for composite liner system	4840	CY	25	121000
9	GCL or geomembrane for composite liner system	8750	SY	10	87500
10	Leachate collection and removal system	1	LS	100000	100000
11	Water storage/delivery system	1	LS	106500	106500
12	Monitoring wells for GW detection system	500	LF	45	22500
13	Surface water control system grading	15	DAY	2116	31740
14	Surface water control structures	11	EA	1000	11000
15	West Sharrard Gulch protection	1	LS	42525	42525
16	Interior Fencing, chain link	910	LF	22	20020
17	Site Fencing, barbed wire	1800	LF	8.65	15570
18	Nuisance control features	1	LS	20000	20000
					800018
SHALE PLACEMENT & CLOSURE					
19	Surveying	1	LS	10000	10000
20	Partial excavation of shale pile + impoundments	57000	CY	1.36	77520
21	Haul to in-place repository	57000	CY	3.78	215460
22	Backfill at repository	57000	CY	0.63	35910
23	Compaction at repository	57000	CY	0.27	15390
24	Reshaping - unexcavated areas	78000	CY	7	546000
25	Compaction - unexcavated areas	78000	CY	3	234000
26	Permanent surface water control grading	22.5	DAY	2116	47610
27	Permanent surface water structures	26	EA	1500	39000
28	West Sharrard Gulch protection	1	LS	99225	99225
29	Final cover system - low permeability soil	13310	CY	16.95	225605
30	Final cover system - rooting/seed bed layer	13310	CY	0.63	8385
31	Revegetation - in-place repos. - hydroseed & hydromulch	1.5	AC	4000.00	6000
32	Revegetation - reshaped shale pile - hydroseed & hydromulch	4	AC	4000.00	16000
33	Dumping Fees	0	CY	51.84	0
					1576105
SUBTOTAL FOR CONSTRUCTION					
34	Additional line items allowance	10	%	2578736	257874
SUBTOTAL FOR CONSTRUCTION WITHOUT CONTINGENCY					
35	Contingency	15	%	2836609	425491
SUBTOTAL FOR CONSTRUCTION WITH CONTINGENCY					
					3262101
ENGINEERING & DESIGN					
36	Certificate of Designation Application Fees	0	LS	10000	0
37	CDPHE stormwater constr. & dewatering permit fees	0	LS	1900	0
38	Engineering design & operation report (including HASP)	4	%	3262101	130484
39	Drilling for site characterization	150	LF	45.00	6750
40	Construction oversight	6	%	3262101	195726
41	Administration	3	%	3262101	97863
					430823
OPERATIONAL REQUIREMENTS					
PLAN DEVELOPMENT:					
42	PCB detection/prevention program	0	LS	10000	0
43	Waste characterization/disposal plan	1	LS	20000	20000
44	Groundwater monitoring program	1	LS	42000	42000
45	Explosive gas monitoring program	0	LS	10000	0
46	High wind shutdown protocols	0	LS	10000	0
					62000
PLAN IMPLEMENTATION ANNUALLY:					
47	PCB detection/prevention program	0	YR	3000	0
48	Waste characterization/disposal	2	YR	17000	30736
49	Groundwater monitoring	30	YR	10000	132777
50	Explosive gas monitoring program	2	YR	3000	5424
51	Site security	2	YR	45000	81361
52	Recordkeeping	2	YR	37000	66897
					317195
FACILITY CLOSURE - ENGINEERING/DESIGN					
53	State & Local notifications	1	LS	3000	3000
54	General public notification	1	LS	3000	3000
55	Trespass prevention measures	1	LS	3500	3500
56	Permanent surface water control plan	1	LS	10000	10000
57	Closure plan preparation, incl. final cover system	1	LS	42000	42000
58	Post-closure plan preparation	1	LS	10000	10000
					71500
SUBTOTAL FOR DESIGN					
59	Additional line items allowance	5	%	881518	44076
SUBTOTAL FOR DESIGN WITHOUT CONTINGENCY					
60	Contingency	10	%	925594	92559
SUBTOTAL FOR DESIGN WITH CONTINGENCY					
					1018153
TOTAL FOR DESIGN + CONSTRUCTION (ROUNDED)					
					4280000
ASSUMPTIONS & LIMITATIONS:					
1	Pricing is for 2004 present value with 7 percent discount rate.				
2	Annual costs are set at max. 2 years for activities associated with operation of the landfill.				
3	Annual costs are set at 30 years for long-term monitoring activities that will continue after operations at the landfill have ceased.				
4	Annual plan implementation assumes one full- and one half-time employee to oversee repository operations.				
5	Waste characterization/disposal plan outlines waste screening, handling, and exclusion procedures and contingency plan to prevent/address accidental inclusion of hazardous waste.				
6	Approximately 40% of shale pile volume is relocated to extended in-place repository. 100% of volume is compacted.				

ANVIL POINTS FACILITY					
OPINION OF PROBABLE COST - CONCEPTUAL					
ONSITE REPOSITORY ALTERNATIVE - DRAFT					
Item No.	Line Item	Est. Qty.	Unit	Unit Price	Extended Price
Description					
MOBILIZATION & GENERAL SITE PREPARATION					
1	Mobilization, Bonding, Insurance	5	%	2957829	147891
2	Construction BMPs (E&S Controls)	1	LS	10000	10000
3	Access road improvement & final repair	14	DAY	1073	15022
4	Clear & Grub repository site & remove stumps	7	AC	7425	51975
5	Cleanup & Demobilization	1	LS	10000	10000
					234888
REPOSITORY SITE PREPARATION					
6	Surveying	1	LS	10000	10000
7	Excavation & stockpile for cover & screening at 25%	61400	CY	5.61	344608
8	Clay import for composite liner system	11293	CY	25	282333
9	GCL or geomembrane for composite liner system	18750	SY	10	187500
10	Leachate collection and removal system	1	LS	100000	100000
11	Water storage/delivery system	1	LS	106500	106500
12	Monitoring wells for GW detection system	750	LF	45	33750
13	Surface water control system grading	20	DAY	2116	42320
14	Surface water control structures	30	EA	1000	30000
15	West Sharrard Gulch protection	1	LS	5000	5000
16	Interior Fencing, chain link	1400	LF	22	30800
17	Site Fencing, barbed wire	1960	LF	8.65	16954
18	Nuisance control features	1	LS	20000	20000
					1209765
SHALE PLACEMENT & CLOSURE					
19	Surveying	1	LS	10000	10000
20	Excavation of shale pile & impoundments	135000	CY	1.36	183600
21	Haul to onsite repository	135000	CY	3.42	461700
22	Backfill at repository	135000	CY	0.63	85500
23	Compaction at repository	135000	CY	0.27	36450
24	Reshaping - shale pile	0	CY	7	0
25	Compaction - shale pile	0	CY	3	0
26	Permanent surface water control grading	15	DAY	2116	31740
27	Permanent surface water structures	36	EA	1500	54000
28	West Sharrard Gulch protection	0	LS	66150	0
29	Final cover system - low permeability soil	8470	CY	16.95	143567
30	Final cover system - rooting/seed bed layer	8470	CY	0.63	5336
31	Revegetation - onsite repos. - hydroseed & hydromulch	3.5	AC	4000.00	14000
32	Revegetation - excavated shale pile - hydroseed & hydromulch	4	AC	4000.00	16000
33	Dumping Fees	0	CY	51.84	0
					1041443
SUBTOTAL FOR CONSTRUCTION					2486096
34	Additional line items allowance	10	%	2486096	248610
SUBTOTAL FOR CONSTRUCTION WITHOUT CONTINGENCY					2734705
35	Contingency	15	%	2734705	410206
SUBTOTAL FOR CONSTRUCTION WITH CONTINGENCY					3144911
ENGINEERING & DESIGN					
36	Certificate of Designation Application Fees	0	LS	10000	0
37	CDPHE stormwater constr. & dewatering permit fees	0	LS	1900	0
38	Engineering design & operation report (including HASP)	4	%	3144911	125796
39	Drilling for site characterization	300	LF	45.00	13500
40	Construction oversight	6	%	3144911	188695
41	Administration	3	%	3144911	94347
					422338
OPERATIONAL REQUIREMENTS					
PLAN DEVELOPMENT:					
42	PCB detection/prevention program	0	LS	10000	0
43	Waste characterization/disposal plan	1	LS	20000	20000
44	Groundwater monitoring program	1	LS	42000	42000
45	Explosive gas monitoring program	0	LS	10000	0
46	High wind shutdown protocols	0	LS	10000	0
					62000
PLAN IMPLEMENTATION ANNUALLY:					
		Discount Rate =	7%		
47	PCB detection/prevention program	0	YR	3000	0
48	Waste characterization/disposal	2	YR	17000	30736
49	Groundwater monitoring	30	YR	14000	185887
50	Explosive gas monitoring program	2	YR	3000	5424
51	Site security	2	YR	45000	81361
52	Recordkeeping	2	YR	37000	68897
					370305
FACILITY CLOSURE - ENGINEERING/DESIGN					
53	State & Local notifications	1	LS	3000	3000
54	General public notification	1	LS	3000	3000
55	Trespass prevention measures	1	LS	3500	3500
56	Permanent surface water control plan	1	LS	10000	10000
57	Closure plan preparation, incl. final cover system	1	LS	42000	42000
58	Post-closure plan preparation	1	LS	10000	10000
					71500
SUBTOTAL FOR DESIGN					926144
59	Additional line items allowance	5	%	926144	46307
SUBTOTAL FOR DESIGN WITHOUT CONTINGENCY					972451
60	Contingency	10	%	972451	97245
SUBTOTAL FOR DESIGN WITH CONTINGENCY					1069696
TOTAL FOR DESIGN + CONSTRUCTION (ROUNDED)					4215000
ASSUMPTIONS & LIMITATIONS:					
1	Pricing is for 2004 present value with 7 percent discount rate.				
2	Annual costs are set at max. 2 years for activities associated with operation of the landfill.				
3	Annual costs are set at 30 years for long-term monitoring activities that will continue after operations at the landfill have ceased.				
4	Annual plan implementation assumes one full- and one half-time employee to oversee repository operations.				
5	Waste characterization/disposal plan outlines waste screening, handling, and exclusion procedures and contingency plan to prevent/address accidental inclusion of hazardous waste.				

ANVIL POINTS FACILITY					
OPINION OF PROBABLE COST - CONCEPTUAL					
ALTERNATE ONSITE REPOSITORY ALTERNATIVE - DRAFT					
Item No.	Line Item	Est. Qty.	Unit	Unit Price	Extended Price
Description					
MOBILIZATION & GENERAL SITE PREPARATION					
1	Mobilization, Bonding, Insurance	5	%	3654591	182730
2	Construction BMPs (E&S Controls)	1	LS	10000	10000
3	Access road improvement & final repair	14	DAY	1073	15022
4	Clear & Grub repository site & remove stumps	7	AC	7425	51975
5	Cleanup & Demobilization	1	LS	10000	10000
					269727
REPOSITORY SITE PREPARATION					
6	Surveying	1	LS	10000	10000
7	Excavation & stockpile for cover & screening at 25%	61400	CY	5.61	344608
8	Clay import for composite liner system	11293	CY	25	282333
9	GCL or geomembrane for composite liner system	18750	SY	10	187500
10	Leachate collection and removal system	1	LS	100000	100000
11	Water storage/delivery system	1	LS	106500	106500
12	Monitoring wells for GW detection system	750	LF	45	33750
13	Surface water control system grading	20	DAY	2116	42320
14	Surface water control structures	30	EA	1000	30000
15	West Sharrard Gulch protection	1	LS	5000	5000
16	Interior Fencing, chain link	1400	LF	22	30800
17	Site Fencing, barbed wire	1960	LF	8.65	16954
18	Nuisance control features	1	LS	20000	20000
					1209765
SHALE PLACEMENT & CLOSURE					
19	Surveying	1	LS	10000	10000
20	Excavation of shale pile & impoundments	135000	CY	1.36	183600
21	Haul to onsite repository	10125	HR	100.00	1012500
22	Backfill at repository	135000	CY	0.63	85050
23	Compaction at repository	135000	CY	0.27	36450
24	Reshaping - shale pile	0	CY	7	0
25	Compaction - shale pile	0	CY	3	0
26	Permanent surface water control grading	15	DAY	2116	31740
27	Permanent surface water structures	36	EA	1500	54000
28	West Sharrard Gulch protection	0	LS	66150	0
29	Final cover system - low permeability soil	8470	CY	16.95	143567
30	Final cover system - rooting/seed bed layer	8470	CY	0.63	5336
31	Revegetation - onsite repos. - hydroseed & hydromulch	3.5	AC	4000.00	14000
32	Revegetation - excavated shale pile - hydroseed & hydromulch	4	AC	4000.00	16000
33	Dumping Fees	0	CY	51.84	0
					1592243
SUBTOTAL FOR CONSTRUCTION					
34	Additional line items allowance	10	%	3071734	307173
SUBTOTAL FOR CONSTRUCTION WITHOUT CONTINGENCY					
35	Contingency	15	%	3378907	506836
SUBTOTAL FOR CONSTRUCTION WITH CONTINGENCY					
					3885743
ENGINEERING & DESIGN					
36	Certificate of Designation Application Fees	0	LS	10000	0
37	CDPHE stormwater constr. & dewatering permit fees	0	LS	1900	0
38	Engineering design & operation report (including HASP)	3.5	%	3885743	136001
39	Drilling for site characterization	300	LF	45.00	13500
40	Construction oversight	5	%	3885743	194287
41	Administration	2.5	%	3885743	97144
					440932
OPERATIONAL REQUIREMENTS					
PLAN DEVELOPMENT:					
42	PCB detection/prevention program	0	LS	10000	0
43	Waste characterization/disposal plan	1	LS	20000	20000
44	Groundwater monitoring program	1	LS	42000	42000
45	Explosive gas monitoring program	0	LS	10000	0
46	High wind shutdown protocols	0	LS	10000	0
					62000
PLAN IMPLEMENTATION ANNUALLY:					
47	PCB detection/prevention program	0	YR	3000	0
48	Waste characterization/disposal	2	YR	17000	30736
49	Groundwater monitoring	30	YR	14000	185887
50	Explosive gas monitoring program	2	YR	3000	5424
51	Site security	2	YR	45000	81361
52	Recordkeeping	2	YR	37000	66897
					370305
FACILITY CLOSURE - ENGINEERING/DESIGN					
53	State & Local notifications	1	LS	3000	3000
54	General public notification	1	LS	3000	3000
55	Trespass prevention measures	1	LS	3500	3500
56	Permanent surface water control plan	1	LS	10000	10000
57	Closure plan preparation, incl. final cover system	1	LS	42000	42000
58	Post-closure plan preparation	1	LS	10000	10000
					71500
SUBTOTAL FOR DESIGN					
59	Additional line items allowance	5	%	944737	47237
SUBTOTAL FOR DESIGN WITHOUT CONTINGENCY					
60	Contingency	10	%	991974	99197
SUBTOTAL FOR DESIGN WITH CONTINGENCY					
					1091171
TOTAL FOR DESIGN + CONSTRUCTION (ROUNDED)					
					4977000
ASSUMPTIONS & LIMITATIONS:					
1	Pricing is for 2004 present value with 7 percent discount rate.				
2	Annual costs are set at max. 2 years for activities associated with operation of the landfill.				
3	Annual costs are set at 30 years for long-term monitoring activities that will continue after operations at the landfill have ceased.				
4	Annual plan implementation assumes one full- and one half-time employee to oversee repository operations.				
5	Waste characterization/disposal plan outlines waste screening, handling, and exclusion procedures and contingency plan to prevent/address accidental inclusion of hazardous waste.				

ANVIL POINTS FACILITY					
OPINION OF PROBABLE COST - CONCEPTUAL					
OFFSITE LANDFILL ALTERNATIVE - DRAFT					
Item No.	Line Item	Est. Qty.	Unit	Unit Price	Extended Price
MOBILIZATION & GENERAL SITE PREPARATION					
1	Mobilization, Bonding, Insurance	5	%	1330731	66537
2	Construction BMPs (E&S Controls)	1	LS	5000	5000
3	Access road improvement & final repair	3	DAY	1073	3219
4	Clear & Grub repository site & remove stumps	0	AC	7425	0
5	Cleanup & Demobilization	1	LS	5000	5000
					79756
SITE PREPARATION - AT PILE					
6	Surveying	0	LS	10000	0
7	Excavation & stockpile for cover & screening at 25%	0	CY	5.61	0
8	Clay import for composite liner system	0	CY	25	0
9	GCL or geomembrane for composite liner system	0	SY	10	0
10	Leachate collection and removal system	0	LS	100000	0
11	Water storage/delivery system	0	LS	106500	0
12	Monitoring wells for GW detection system	0	LF	45	0
13	Surface water control system grading	8	DAY	2116	16928
14	Surface water control structures	6	EA	500	3000
15	West Sharrard Gulch protection	1	LS	5000	5000
16	Interior Fencing, chain link	0	LF	22	0
17	Site Fencing, barbed wire	0	LF	8.65	0
18	Nuisance control features	0	LS	20000	0
					24928
SHALE EXCAVATION					
19	Surveying	1	LS	10000	10000
20	Excavation of shale pile + impoundments (including reveg.prep.)	135000	CY	1.46	197100
21	Haul to offsite landfill	135000	CY	5.55	749250
22	Backfill at repository	0	CY	0.63	0
23	Compaction at repository	0	CY	0.27	0
24	Reshaping - unexcavated areas	0	CY	7	0
25	Compaction - unexcavated areas	0	CY	3	0
26	Permanent surface water control grading	4	DAY	2116	8464
27	Permanent surface water structures	6	EA	1500	9000
28	West Sharrard Gulch protection	0	LS	99225	0
29	Final cover system - low permeability soil	0	CY	16.95	0
30	Final cover system - rooting/seed bed layer	0	CY	0.63	0
31	Revegetation - repos. - hydroseed & hydromulch	0	AC	4000.00	0
32	Revegetation - excavated shale pile - hydroseed & hydromulch	10	AC	4000.00	40000
33	Dumping Fees	135000	CY	51.84	6998400
					8012214
SUBTOTAL FOR CONSTRUCTION					
34	Additional line items allowance	10	%	1118498	111850
SUBTOTAL FOR CONSTRUCTION WITHOUT CONTINGENCY					
35	Contingency	15	%	1230347	184552
SUBTOTAL FOR CONSTRUCTION WITH CONTINGENCY					
ENGINEERING & DESIGN					
36	Certificate of Designation Application Fees	0	LS	10000	0
37	CDPHE stormwater constr. & dewatering permit fees	0	LS	1900	0
38	Engineering design & operation report (including HASP)	6	%	1414899	84894
39	Drilling for site characterization	0	LF	45.00	0
40	Construction oversight	7	%	1414899	99043
41	Administration	3	%	1414899	42447
					226384
OPERATIONAL REQUIREMENTS					
PLAN DEVELOPMENT:					
42	PCB detection/prevention program	0	LS	10000	0
43	Waste characterization/disposal plan	0	LS	20000	0
44	Groundwater monitoring program	0	LS	42000	0
45	Explosive gas monitoring program	0	LS	10000	0
46	High wind shutdown protocols	0	LS	10000	0
					0
PLAN IMPLEMENTATION ANNUALLY:					
47	PCB detection/prevention program	0	YR	3000	0
48	Waste characterization/disposal	0	YR	17000	0
49	Groundwater monitoring	30	YR	8000	106221
50	Explosive gas monitoring program	0	YR	3000	0
51	Site security	0	YR	45000	0
52	Recordkeeping	0	YR	37000	0
					106221
FACILITY CLOSURE - ENGINEERING/DESIGN					
53	State & Local notifications	0	LS	3000	0
54	General public notification	0	LS	3000	0
55	Trespass prevention measures	0	LS	3500	0
56	Permanent surface water control plan	0	LS	10000	0
57	Closure plan preparation, incl. final cover system	0	LS	42000	0
58	Post-closure plan preparation	0	LS	10000	0
					0
SUBTOTAL FOR DESIGN					
59	Additional line items allowance	0	%	332605	0
SUBTOTAL FOR DESIGN WITHOUT CONTINGENCY					
60	Contingency	5	%	332605	16630
SUBTOTAL FOR DESIGN WITH CONTINGENCY					
TOTAL FOR DESIGN + CONSTRUCTION (ROUNDED)					
					8763000
ASSUMPTIONS & LIMITATIONS:					
1	Pricing is for 2004 present value with 7 percent discount rate.				
2	No additional drilling or geophysical investigations required for site characterization.				